



Protecting Groundwater Resources

By Pierce Rigrod

Many states and leading experts continue to stress the importance of containing and managing hazardous materials as a necessary strategy to maintain water quality. Managing hazardous materials to avoid releases to New Hampshire's water continues to be an important goal to ensure high-quality water resources. Releases of hazardous materials, such as gas, oil or solvents, often occur when stormwater washes them from commercial or industrial activities and into surrounding water resources. Treating stormwater containing more contaminants has a cost, and even as stormwater technology and designs improve, the additional cost and complexity of those systems underscores the need to have in place simple controls and management systems for potential ground or surface water contaminants.

The New Hampshire Department of Environmental Services' (DES) approach to protecting groundwater is a hierarchical approach that includes land conservation for the most sensitive resource areas, prohibiting a few "high-risk" land use restrictions and then applying proper management of hazardous substances.

Hazardous substances can be properly used in a manner that minimizes the risk of a spill or other release to groundwater or nearby surface water. Accordingly, the focus of groundwater protection programs should be on management of existing activities as well as effective performance standards for those new developments that utilize regulated substances. The need for local management to ensure proper use is apparent as many commercial and industrial areas "build out" in New Hampshire. Many of these industrial and commercial areas are located over the most productive stratified drift aquifers.

Better Management Through Best Management Practices (BMPs)

As directed by the New Hampshire legislature under the Groundwater Protection Act (RSA 485-C) the DES has established "best management practices" (BMPs) that must be employed by potential contamination sources (PCSs, defined under RSA 485-C) throughout the state. However, the reality is that local entities (municipalities and public water suppliers) are indispensable partners with DES in ensuring compliance with the BMP requirements. DES's Best Management Practices rule, (Env-Ws 421) applies to a defined set of "regulated substances" that pose a higher risk to groundwater quality. The BMPs are basic practices, which include the use of appropriate containers, labeling on containers, impervious floor surfaces and outdoor storage. For example, the BMP rule establishes that containers with regulated substances stored outside must be covered and placed upon impervious surfaces.

The BMP rule applies to *any* non-residential activity that uses more than household quantities (more than five gallons) of regulated substances, with few exceptions. Determining whether an activity or operation is following the state BMPs is not difficult or time consuming. Many water suppliers and local health officers visit these facilities to ensure BMPs are being used.

DES inspects underground storage tanks (USTs), above ground storage tanks (ASTs), hazardous waste generators, and solid waste facilities (to name several) to ensure that similar BMPs are employed at these facilities. However, many activities that use regulated substances do not require a state permit or registration, and could benefit from local review and oversight.

For example, recent DES experiences with some auto salvage yards suggest that there is still more work to be done to both raise awareness and implement basic controls on storage, handling and use of gasoline, used oil, antifreeze and other potential contaminants that can be released into the surface or groundwater.

What Is a Local Groundwater Management Program?

Local groundwater protection can take a variety of forms, from having the Girl Scouts stenciling storm drains that discharge urban runoff or the Public Works instituting a low-salt policy near a community well. Usually, a groundwater management program is an organized approach to protecting an important groundwater resource area by providing regular public education activities and conducting on-site inspections to ensure compliance with the BMPs in the Env-Ws 421 rule or similar protections. Public education is targeted to residents and PCSs, and is typically distributed on an annual or a triennial basis. Towns or water suppliers are using creative strategies that maximize their educational messages,

Examples of BMPs	
<p>Storage</p> <ul style="list-style-type: none"> • Store regulated substances on an impervious surface • Cover regulated containers in outside storage areas • Keep regulated containers at least 50 feet from storm drains, if no secondary containment 	<p>Handling</p> <ul style="list-style-type: none"> • Place drip pans under spigots, valves and pumps • Have spill control and containment equipment readily available • Perform transfers (for example, filling containers) over impervious surface

often publishing through multiple media outlets (that is, Web site, cable access TV, tax bills or town reports). Stratham, for example, puts information on managing potential contaminants within their town report, which is mailed to all residents of the town.

Where PCSs exist, a groundwater protection management program must address how BMPs are used within the context of specific industrial or commercial activities. This is done through BMP inspections, also referred to as BMP “surveys” of existing PCS activities and they are typically completed once every three years. Most local BMP inspection programs are conducted on a volun-

tary basis, meaning the PCS owners are not required to participate because the local entity has no regulatory authority. Where local entities acquire regulatory authority, either through local health regulations or through the groundwater reclassification process (see below), compliance with BMPs can be locally enforced. In New Hampshire approximately 73 public water systems conduct voluntary BMP surveys, mostly without enforcement authority.

A local groundwater management program may involve enforcement of state BMPs under RSA 485-C or RSA 147. A municipal health officer, under RSA 147, has the authority to enter onto private property to inspect and order removal of a nuisance that is “injurious” to the public’s health. RSA 485-C:16 also gives concurrent authority (with DES) to health agents to issue cease and desist orders, when deemed necessary to protect groundwater. For example, enforcement to remove an open drum of oil or gas that is leaking and presents a public health nuisance can be conducted under the authority provided under RSA 147:4. But in circumstances where BMP rules are not being followed and there is no immediate nuisance or public health injury, a health officer must rely upon a local health ordinance or state groundwater reclassification for the authority to enforce state BMPs.



Above: Poor control of regulated fluids at an auto salvage yard, 2005. Photo courtesy New Hampshire Department of Environmental Services.

A Local Health Ordinance as a Groundwater Management Program

A town may adopt a local health ordinance to require local compliance with Env-421 BMPs, and establish a health agent's authority to enforce BMPs. Such a health ordinance should also spell out the local process regarding, PCS notification and BMP survey procedures, and local certification of compliance. Adopting a local health ordinance will be useful to ensure a BMP program is properly administered and consistent with other local ordinances. Several steps should be taken in advance when planning the adoption of a health ordinance, including: 1) delineating the groundwater resource area, (that is, wellhead protection areas or aquifer); 2) identifying PCSs within that area that will be surveyed; and 3) establishing a survey protocol for use by the health agent. By adopting a local health ordinance, the municipality may specifically define the set of activities or land use activities that it determines to be PCSs, beyond what is considered a PCS as listed under RSA 485C. DES provides a model health ordinance for communities interested in adopting a local health ordinance, however, consult with town counsel and DES in advance of adoption. (DES's Model Health Ordinance can be found at www.des.nh.gov/dwspp/hodoc4.pdf.)

State Reclassification as a Groundwater Management Program

The legislature also allows a local entity (town or water supplier) to make application to DES to "reclassify" a specific area around a public water supply well, an aquifer or other area that contains locally important groundwater resources as determined by the local entity. Reclassification of wellhead protection areas (WHPAs) or other

Reclassification of wellhead protection areas (referred to as GAA in RSA 485-C) also prohibits the development of new solid waste landfill or hazardous waste disposal facility, outdoor storage of deicing chemicals (including salt), auto salvage yards, snow dumps or wastewater or septage lagoons within the wellhead protection area of a public water supply.

areas of high-value groundwater (that is, highly productive aquifers), also involves instituting a local PCS education and survey program as a means to greater adherence to BMPs.

Reclassification through RSA 485-C:15 also gives the authority to local health agents to enter onto private property to enforce provisions under the statute, including the state BMPs. DES's Model Health Ordinance provides an approach with draft language for adopting a local health ordinance in conjunction with or independently from state groundwater reclassification.

New Development and Groundwater Protection Zoning Ordinances

The focus of a groundwater protection program should not only be on what currently is "on the ground" but also what activities are coming in the future. At least sixty-two municipalities have land use restrictions to protect groundwater resources. The state Model Groundwater Protection Ordinance combines a few land use restrictions with required performance standards that are based upon the requirements of Env-Ws 421 BMPs. Groundwater protection zoning or rules can establish performance standards that improve stormwater quality and require spill control plans that reduce the release of regulated substances to groundwater. Beyond zoning, site plan review rules can be drafted to improve the control of regulated substances and limit the commingling of contaminated surfaces with clean stormwater through the

design and management of loading pads, fuel transfer areas, outdoor storage or waste areas. Good site design can offset poor management by having structural protection built around or within the operations or activities that take place upon the site.

RSA 674 permits local governments to adopt innovative land use controls that include environmental characteristics zoning (that is, wetlands, groundwater, etc.) and performance standards. For example, if there is a violation of a local performance standard that protects groundwater (for example, improper storage of wastes) local governments may issue cease and desist orders (RSA 676:17-a) and local land use citations (RSA 676:17-b), or may pursue civil penalties and injunctive relief in superior or district court (RSA 676:15, 17). Again, when considering the adoption of a groundwater protection ordinance or enforcement, consult your local town counsel.

DES can provide BMP survey training, sample forms and letters, model zoning language, maps and information as well as references to existing local groundwater protection programs.

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